



User Experience: Interface Design Principles

Session 001





Human Interface Design Principles

Stan Taylor, PhD
Aqua User Interface Designer

What HI Principles Are About A Riddle

- 3 salespeople
- \$30 for room
- \$10 per person
- Overcharged by \$5
- Gives back \$1 per person, pockets \$2



What HI Principles Are About A Riddle

- Each paid \$9 for room = \$27
- Bellperson kept \$2 = \$29
- Where did the other dollar go?



What HI Principles Are About A Riddle

- Each paid \$9 for room = \$27
- Each paid \$8 $\frac{1}{3}$ for room = \$25
- Each paid \$ $\frac{2}{3}$ for tip = \$27
- Each got back \$1 = \$30



What HI Principles Are About

Setting and managing expectations



Why Are Principles Important?

- User benefits
 - High satisfaction
 - Reduces cost of ownership
 - Drives expectations
 - Learns your product faster
 - Accomplishes tasks quicker
 - Increased productivity



Why Are Principles Important?

- Developer benefits
 - Reduced support costs
 - Simplified documentation
 - Positive product reviews
 - Satisfied users will buy upgrade



Overview

Forgiveness

User Control

See-and-Point

WYSIWYG

Simplicity

Metaphors

Know your
users

Modelessness

Consistency

Aesthetic Integrity

Direct Manipulation

Focus on Solutions

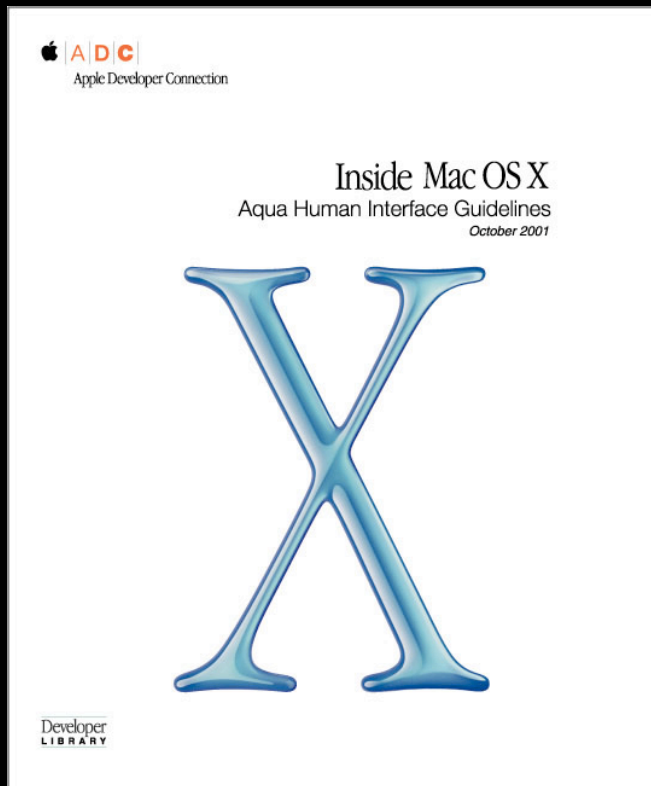
Accessibility

Flexibility

Feedback and Communication



Aqua Human Interface Guidelines



- Available for free from the Apple Developer Web site
- Get your copy today

Developer>Technical>Documentation>Mac OS X>Essentials

<http://developer.apple.com/techpubs/macosx/Essentials/devessentials.html>



Know Your Users

- You are *not* your user!
 - Know who they are
 - Know their capabilities
 - Know their goals
- *Could my niece / nephew / mom / dad / kid / irritating neighbor use it?*



Know Your Users

- Create usage scenarios
 - Who is doing it?
 - What are they doing?
 - What different approaches will they take?
 - How can their job be made simpler?



Know Your Users

- Less computer sophisticated
 - iMac at home, first computer, for digital hub
 - Child in school with iBook
- More computer sophisticated
 - Scientist using G4 tower
 - Professional designer
 - Movie/DVD creator
 - IT professionals



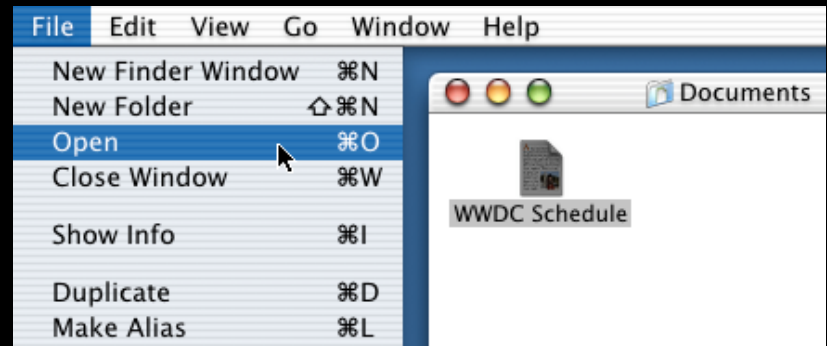
Know Your Users

- Less sophisticated will
 - Become proficient on some tasks
 - “Graduate” to more complex tasks
- More sophisticated will
 - Be a master at some tasks
 - Be a novice at new tasks
 - Be frustrated, also, when your software gets in the way of getting her/his real job done



See-and-Point

- Noun-then-verb
 - Select an object
 - Select an action
 - From a menu
 - Or by direct manipulation
- User “sees” objects
- User can scan menus
- User does not have to memorize commands or syntax



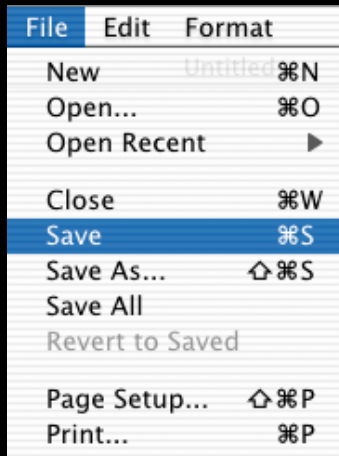
Metaphors

- Build on real-world experience
- Use familiar representations



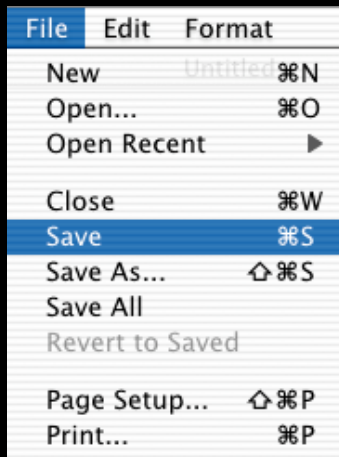
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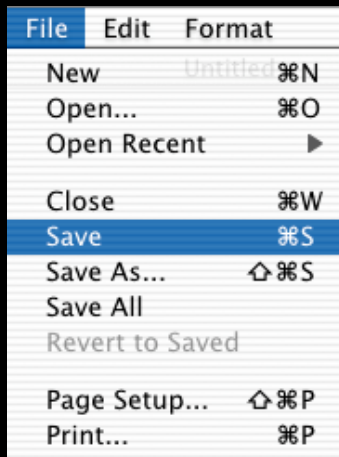
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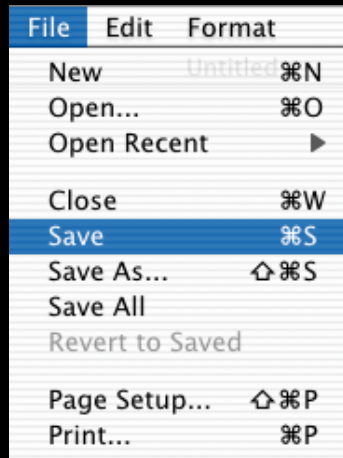


Metaphors

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- Use familiar representations



Metaphors

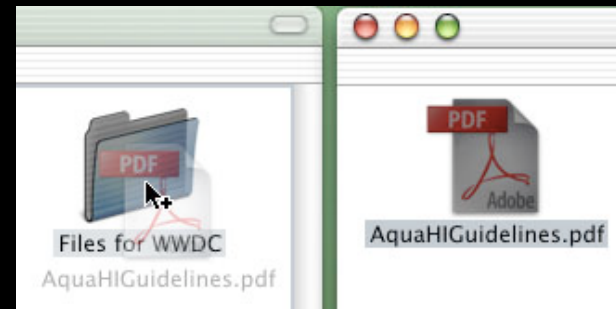


- Users expect similar behaviors
- Familiar behaviors can be extended
- Be aware of narrowing expectations



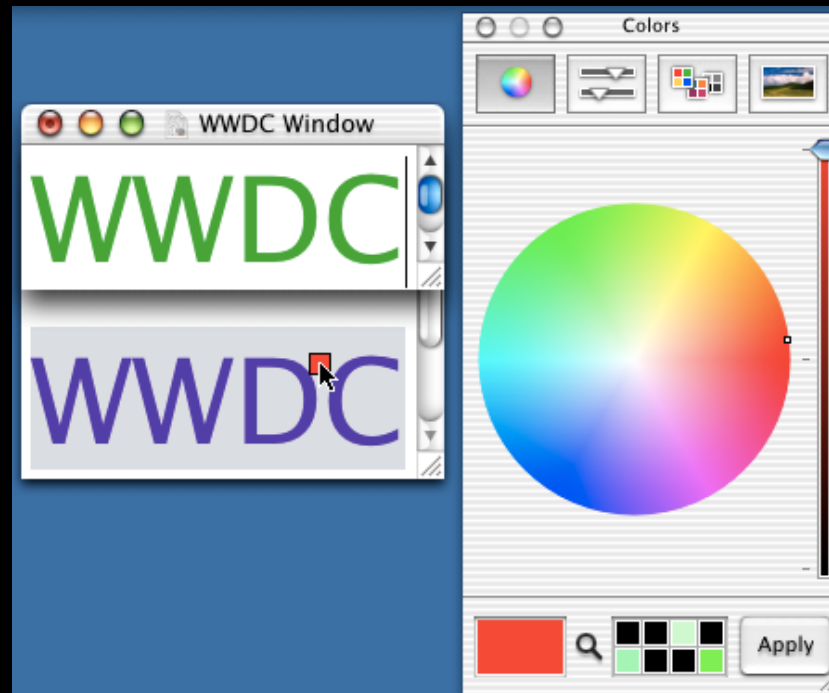
Direct Manipulation

- User acts on object directly
- User keeps focus on the object
- Most common form: Drag and drop
Example: Dragging a file to a folder



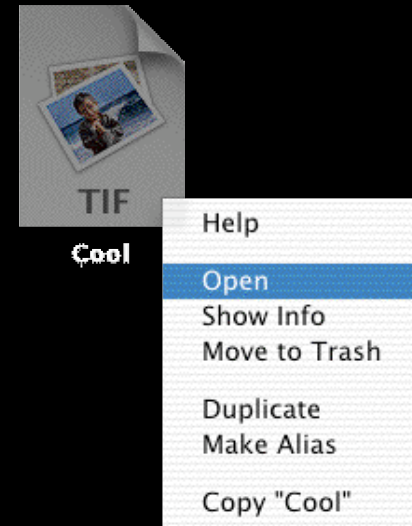
Direct Manipulation

- Support it whenever users expect it
- Provide feedback that the action is taking place



Flexibility

- You cannot please everyone
- Alternative interaction techniques
 - Keyboard navigation and shortcuts
 - Direct manipulation
 - Contextual menus
 - Copy and paste
 - Toolbars
 - Voice input
 - Menu items (always)





Demo

Finder Favorites

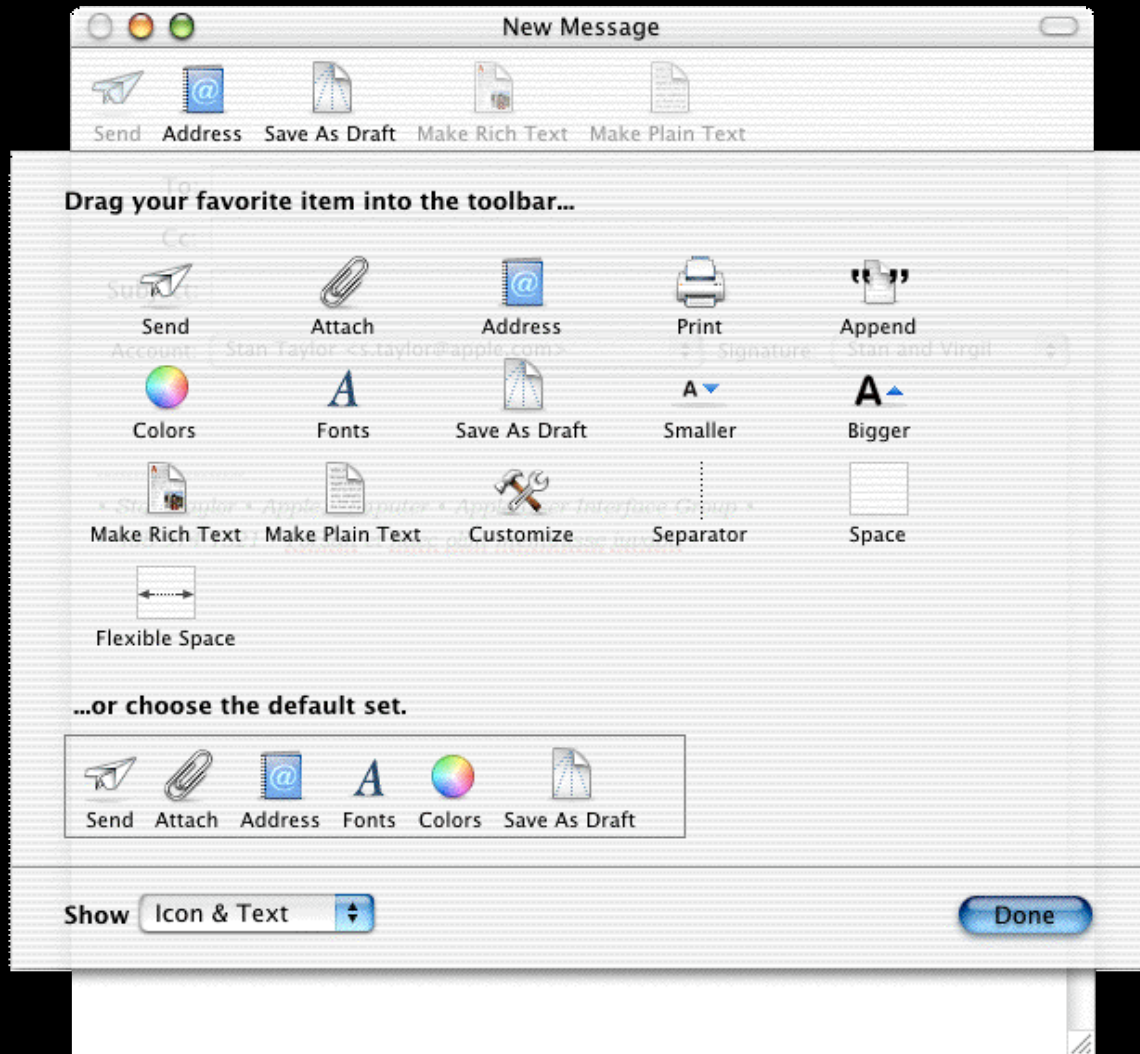
**See-and-Point, Metaphors,
Direct Manipulation, Flexibility**

User Control

- Avoid taking control from the user
- Avoid forcing the user down a path
- Consider proactive assistance
 - Enabling and disabling UI
 - Provide warnings, but allow user to decide
- Provide a working context that gives the user control



User Control



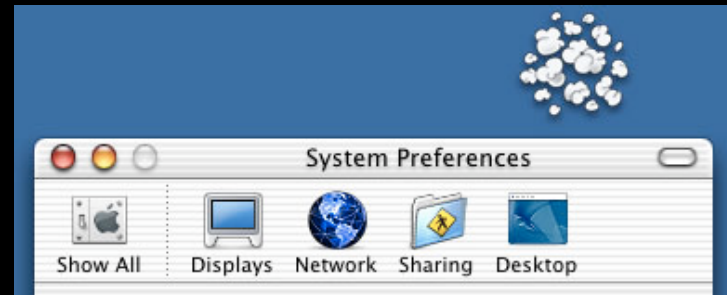
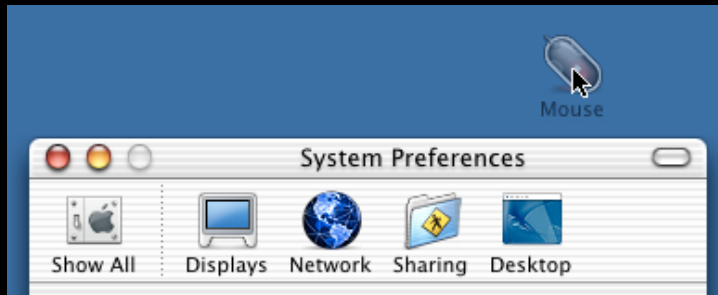
Consistency

- Isn't *the* goal
- But it is very important
- It supports users' expectations
- Builds upon their experiences



Consistency

- Take advantage of the user's expectations
- Help build expectations about interaction



Consistency

- Consider consistency with
- Your application itself
- Real-world concepts or model
 - Previous versions of your product
 - Similar or related applications
- *Aqua Human Interface Guidelines*



WYSIWYG

- Output
 - It is not just about printing
 - Are all media represented faithfully?
 - Movies
 - Music or audio
 - Pictures



WYSIWYG

- Interface
 - Are your features apparent?
 - Do users know what they can accomplish?
 - Do users know how to get more functionality?





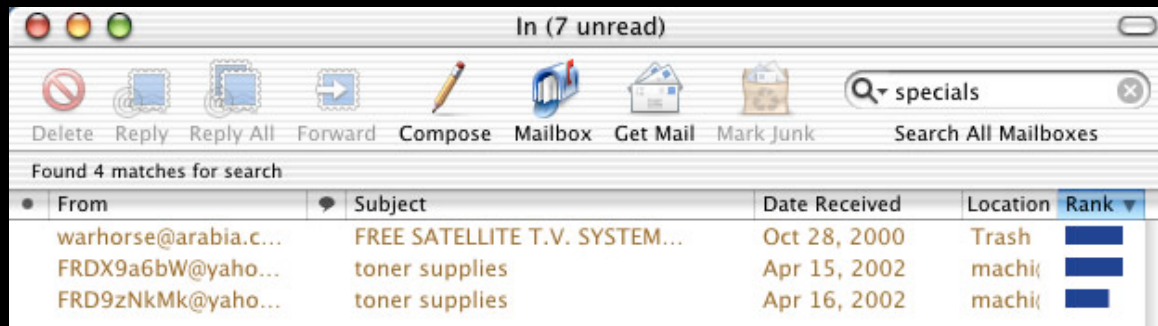
Demo

Toolbars

User Control, Consistency, WYSIWYG

Feedback and Communication

- Various ways to
 - Deliver user information
 - Get information from user
- Use the primary interface



Feedback and Communication

- Indicate status and progress
- Get user's attention
- Provide good error messages
- Simple, non-nested dialogs



Feedback and Communication



Your iDisk cannot be accessed because you do not have an iTools member name and password in System Preferences.

You can enter your iTools information or sign up for an account on the iTools tab in the Internet pane of System Preferences.

Cancel

Open Internet Preferences...



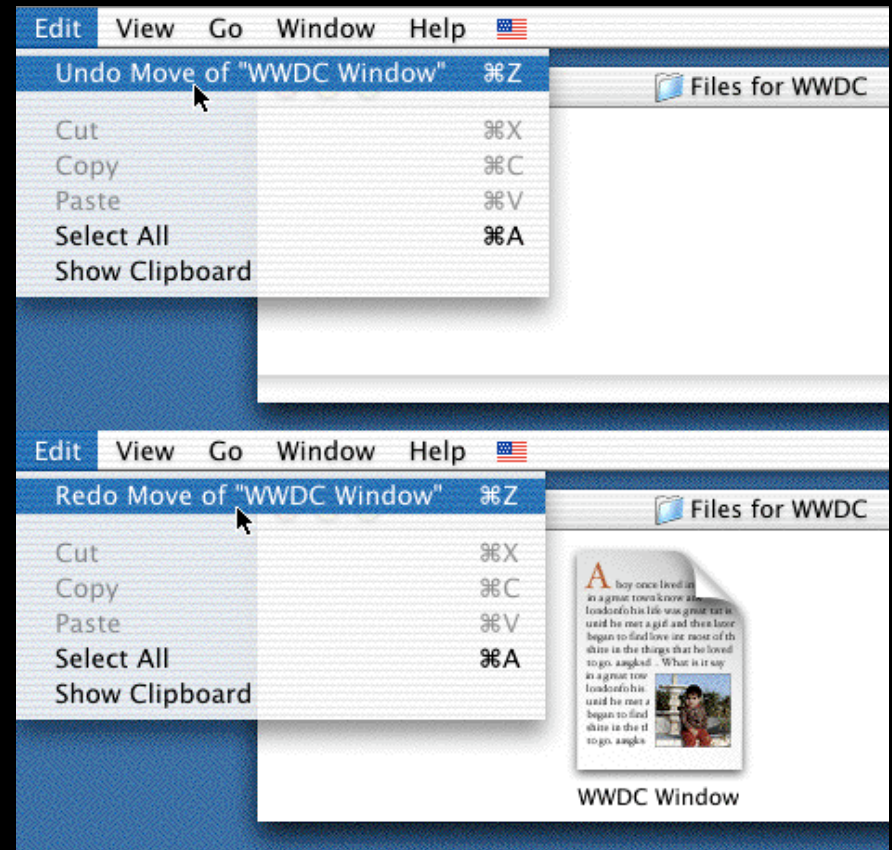
Forgiveness

- Allow users to return to safety after a mistake
- Track steps visually
- Let users exit a sequence of steps
- Warn people when forgiveness cannot be granted



Forgiveness

- Undo/Redo
- Alerts, when needed



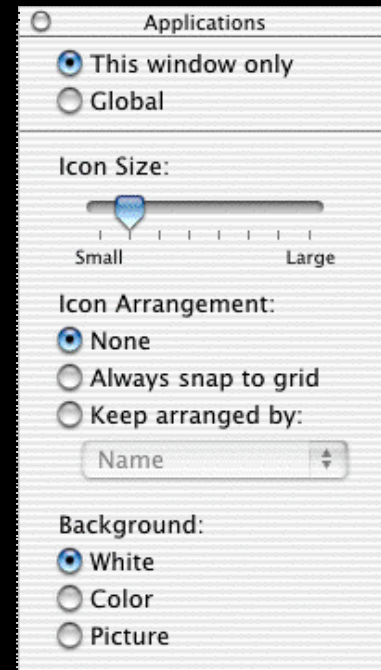
Modelessness

- Avoid trapping the user
- Allow users to do what they want at any time
- Ways to be modeless
 - Modeless dialogs
 - Sheets
 - Drawers



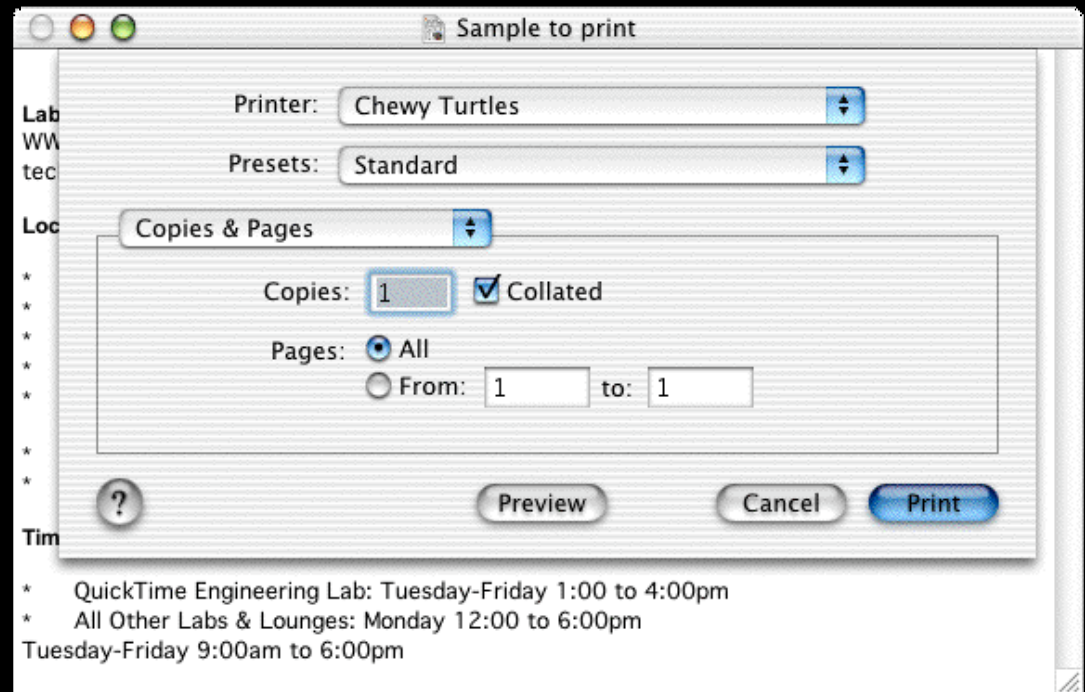
Modelessness

- Ways to be modeless
 - Modeless dialogs



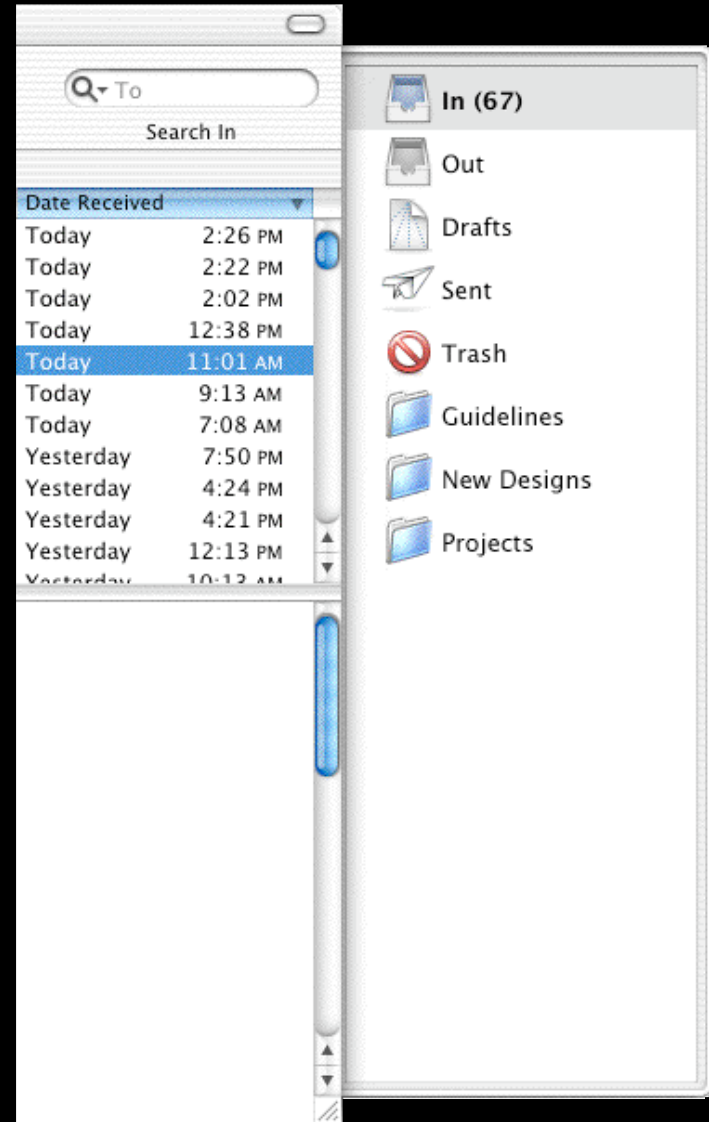
Modelessness

- Ways to be modeless
 - Sheets



Modelessness

- Ways to be modeless
 - Drawers






Demo

TextEdit, Printing, Save Alert

**Feedback, Forgiveness,
and Modelessness**

Aesthetic Integrity

- Sense the eloquence of the interface
- Experience its beauty
- Have the highest-quality imagery, icons, and layout

A blue, rounded rectangular button with a gradient and a slight shadow, containing the word "Aqua" in a dark, sans-serif font.

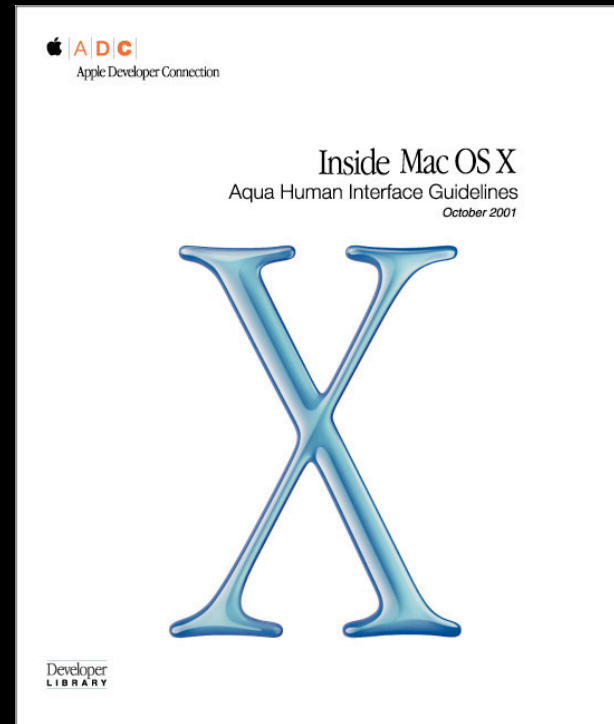
Aqua



Aesthetic Integrity

- Aqua system widgets
- Layout guidelines

Aqua Human Interface Guidelines



Aesthetic Integrity

- Techniques

- Visual hierarchy
- White space
- Simplicity
- Center of focus
- Balance
- Consistency
- Attention to detail



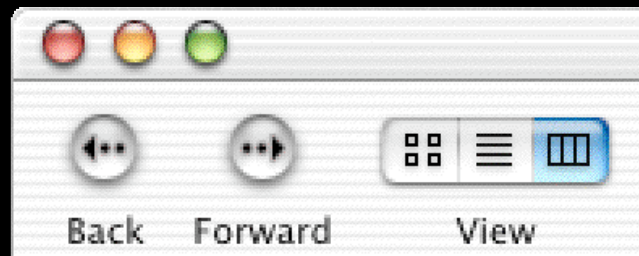
Aesthetic Integrity

- Visual Design supports affordances

- Icons



- Interactive graphics

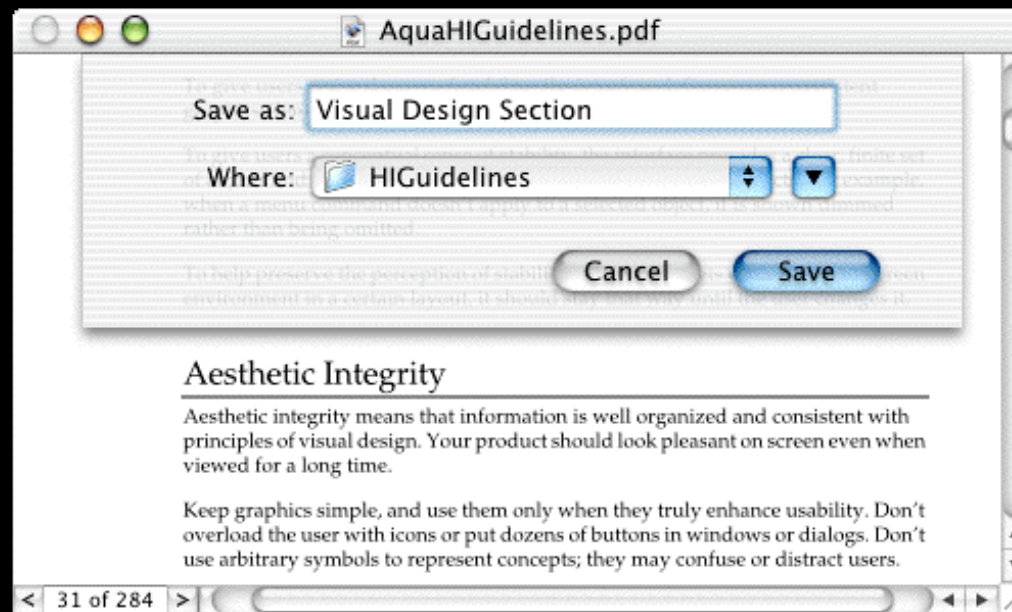


Simplicity

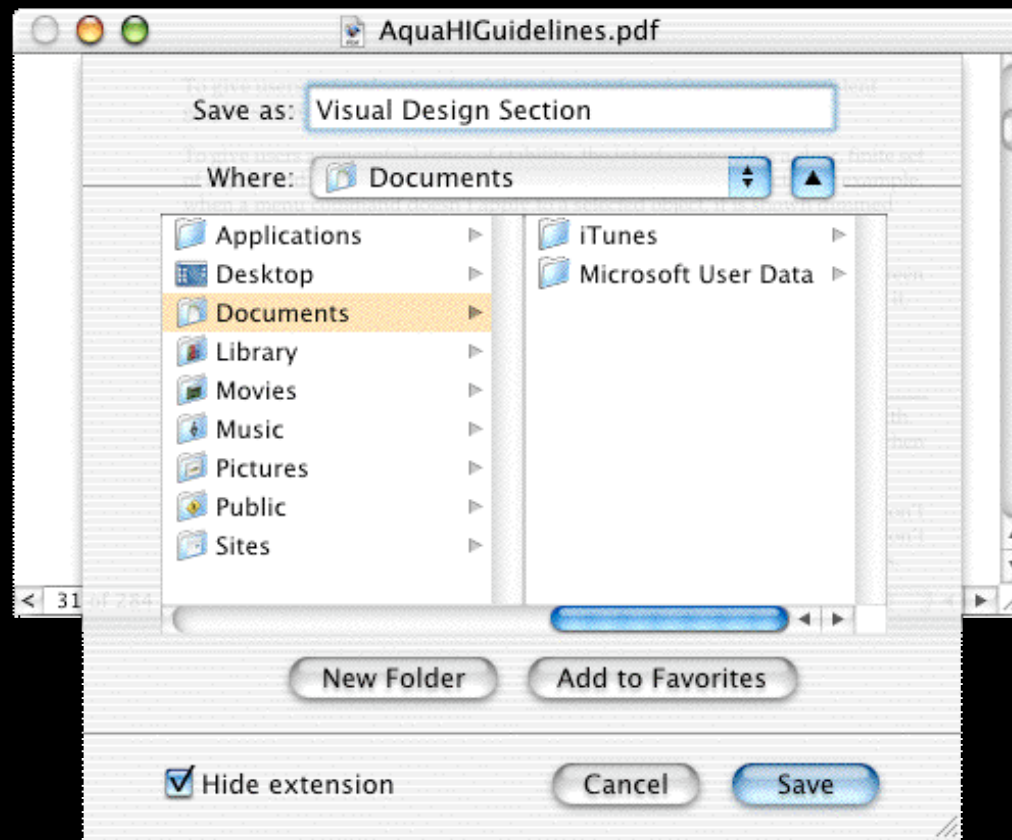
- Less is usually better
- Basic features should be immediately apparent
- Focus on solutions, not just features
- Reduce clutter (subtractive design)



Simplicity



Simplicity



Simplicity

- Progressively disclose advanced features
 - Allows exploration
 - Communicates capabilities via scanning UI
 - Does not hide functionality; lets users discover at their own pace



Accessibility

- Users do not all have the same abilities
- Examples:
 - Visual impairments
 - Hearing impairments
 - Fine motor skills (mouse and keyboard usage)
 - Learning impairments
 - The first three alone account for 1 out of 5 users

52 million people in U.S. with disabilities





Demo

System Preferences and Built-in Accessibility

**Aesthetic Integrity,
Simplicity and Accessibility**

Apple Solutions Applications

- Talked about OS and OS-related applications
- Apple also designs other solution applications
- How are HI Principles used in their design





Apple Applications Testimonial

**Robert Kondrk, Sr. Manager
Applications Software Design
and Production**

Application Design's Little Secrets

- Know your user
- Know your application
- Think about a user using your application
- Think about your application in relation to other applications and data types
- Simplify, then simplify again
- Less is more





The best tools
are ones that you don't
remember you are using



John Geleynse
User Experience Evangelist

Who to Contact

John Geleynse

User Experience Evangelist

Apple Worldwide Developer Relations

geleynse@apple.com



Roadmap

002 User Experience: Adopting Aqua

Hall 2
Today, 10:30am

009 Accessibility Overview

Room A2
Thurs., 2:00pm

**203, 204, 205, 206, 207
HI Toolbox and Carbon Events Sessions**

Hall 2
Tue. and Wed.

209 Accessibility and Carbon

Room A2
Thurs., 3:30pm

**304 Cocoa Controls and
Cocoa Accessibility**

Room A2
Thurs., 5:00pm



Roadmap

012 Address Book Framework

Room C
Fri., 3:30pm

013 Speech Technologies in Mac OS X

Room A2
Fri., 5:00pm

904 Using Interface Builder

Hall 2
Thurs., 3:30pm

**004 System Prefs, Screen Saver,
Disk Image, and Installers**

Room C
Tue., 2:00pm

FF004 Aqua Feedback Forum

Room J1
Thurs., 9:00am

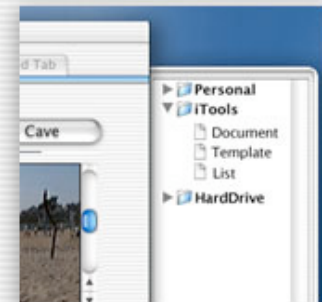
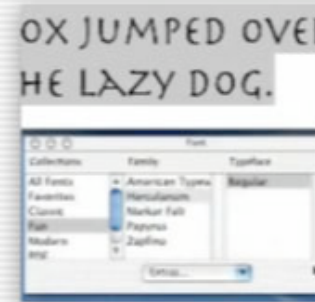
FF005 Toolbox

Room J1
Thurs., 10:30am





Q&A



Aqua Human Interface Designers

<http://developer.apple.com/wwdc2002/urls.html>

 **WWDC2002**

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